## AMENDMENTS TO THE CLAIMS

Claim 1. **(Original)** A measurement device for generating an arterial volume indicative signal, the measurement device comprising:

an exciter adapted to receive an oscillating signal and generate a pressure wave based at least in part on the oscillating signal on the artery at a measurement site on a patient, wherein the pressure wave comprises a frequency; and

a detector placed sufficiently near the measurement site to detect a volumetric signal indicative of arterial volume of the patient.

Claim 2. **(Original)** The measurement device of Claim 1, further comprising an oscillator adapted to generate the oscillating signal.

Claim 3. **(Original)** The measurement device of Claim 1, wherein the measurement device is in communication with a processor, which generates the oscillating signal.

Claim 4. **(Original)** The measurement device of Claim 1, wherein the frequency is about 40 Hz.

Claim 5. **(Original)** The measurement device of Claim 1, wherein the measurement device is in communication with an external pressure application device and the detector comprises a pressure transducer in communication with the external pressure application device.

Claim 6. **(Original)** The measurement device of Claim 1, wherein the detector comprises a plethysmograph.

Claim 7. **(Original)** The measurement device of Claim 1, further comprising a high pass filter, which substantially removes pulsatile components from the volumetric signal, thereby producing a filtered signal, wherein the filtered signal comprises an amplitude.

Claim 8. **(Original)** The measurement device of Claim 7, wherein the measurement device is in communication with a processor, which determines when the amplitude of the filtered signal is greatest, thereby determining when transmural pressure is about zero.

Claim 9. **(Original)** The measurement device of Claim 1, wherein the measurement device is in communication with a processor, which digitally filters the volumetric signal, thereby producing a filtered signal, wherein the filtered signal comprises an amplitude.

Claim 10. **(Original)** The measurement device of Claim 9, wherein the measurement device is in communication with a processor, which determines when the amplitude of the filtered signal is greatest, thereby determining when transmural pressure is about zero.

Claim 11. **(Original)** The measurement device of Claim 1, wherein the volumetric signal comprises an amplitude, and wherein the measurement device is connected to a processor, which determines when the amplitude of the volumetric signal is greatest, thereby determining when transmural pressure is about zero.

Claim 12. **(Original)** The measurement device of Claim 1, wherein the exciter comprises an audio transducer.

Claim 13. **(Original)** A method of determining the blood pressure of a patient from an arterial volume indicative signal, the method comprising:

inducing a high-frequency pressure wave onto an artery;

detecting a signal indicative of arterial volume, wherein the signal includes a high-frequency component from the pressure wave;

filtering low-frequency components from the signal, thereby providing a filtered signal, wherein the filtered signal comprises an amplitude; and

determining when the amplitude of the filtered signal is greatest, thereby determining when transmural pressure is about zero.

Claim 14. **(Original)** The method of Claim 13, wherein the filtering is performed digitally.

Claim 15. **(Original)** The method of Claim 13, wherein the signal is detected with a plethysmograph.

Claim 16. **(Original)** The method of Claim 13, further comprising changing the pressure induced onto the artery by an external pressure application device to determine systolic and diastolic blood pressure.

Claim 17. **(Original)** The method of Claim 13, further comprising changing the pressure induced onto the artery by an external pressure application device to ensure the pressure induced is between systolic and diastolic blood pressure.

Claim 18. **(Original)** A measurement device for determining the blood pressure of a patient by finding a time when transmural pressure is approximately equal to zero, the measurement device comprising:

a device, which perturbs at least one of pressure and volume of an artery of a patient; and

a pressure transducer placed sufficiently near a measurement site to detect a signal indicative of an oscillation response when the device perturbs the at least one of pressure and volume.

Claims 19-20. **(Withdrawn)**.

Claim 21. **(Original)** A measurement device for determining the blood pressure of a patient, the measurement device comprising:

an exciter, which induces a pressure oscillation along an artery; and

a detector, which senses the pressure oscillation and outputs a signal indicative of the pressure oscillation, wherein at least one of the exciter and detector are placed between portions of an external pressure application device and a measurement site.

Claim 22. **(Original)** The measurement device of claim 21, further comprising an oscillator.

Claim 23. **(Original)** The measurement device of claim 21, wherein the pressure oscillation occurs between 100 and 1000 Hz.

Claim 24. **(Original)** A method of determining the blood pressure of a patient, the method comprising:

producing an indication of velocity along an artery; applying an external pressure to the artery; and

finding when the velocity is at a minimum, thereby determining when a transmural pressure is approximately zero.

Claim 25. **(Withdrawn)**.

Claim 26. **(Original)** A method of determining blood pressure of a patient, the method comprising:

providing a range of pressures to an artery;

providing an oscillating signal to the artery;

measuring a signal indicative of the oscillating signal and at least one pressure within the range of pressures;

filtering the signal indicative of the oscillating signal and at least one pressure within the range of pressures to produce a filtered signal, wherein the filtered signal comprises an amplitude;

determining a pressure within the range of pressures when the amplitude of the filtered signal is at maximum.